

WHAT IS CLAIMED IS:

1. A recording apparatus for digitally recording on a recording medium a bit stream comprising a video signal and an audio signal which are coded utilizing the correlation between screens, the apparatus comprising:

normal play recording data generation means for generating from said bit stream normal play recording data, used when normal reproduction is performed, composed of a plurality of predetermined recording blocks;

trick play recording data generation means for generating from said bit stream trick play recording data, used when reproduction at a speed different from that in normal reproduction (hereinafter referred to as trick play) is performed, composed of a plurality of predetermined recording blocks by adding information outputted by packet generation means;

said packet generation means for generating a time information packet representing time information for managing the time when a reproduced image is outputted and a control information packet representing control information for decoding said trick play recording data, and outputting the packets to said trick play recording data generation means; and

recording means for recording through a recording head said normal play recording data in a normal play area to be organized on said recording medium and said trick play recording data in

a trick play area to be organized on said recording medium, wherein said time information packet and said control information packet which are outputted from said packet generation means being respectively recorded at predetermined positions inside said trick play area in a format of said trick play recording data.

2. The recording apparatus according to claim 1, wherein said predetermined positions are provided on said recording medium in such a manner as to be arranged at least once within a predetermined time interval in synchronization with the scanning of said recording head at the time of trick play at a predetermined number of times the speed at the time of normal reproduction.

3. The recording apparatus according to claim 1, wherein said packet generation means generates said time information representing a time reference value within the predetermined time interval, and adds a predetermined fixed value corresponding to the predetermined position inside said trick play area at which said time information is recorded to the previous time information, to calculate the time reference value.

4. The recording apparatus according to claim 2, wherein said packet generation means generates said time information representing a time reference value within the predetermined time interval, and adds a predetermined fixed value corresponding to the predetermined position inside said trick play area at which said time information is recorded to the previous time information,

to calculate the time reference value.

5. The recording apparatus according to claim 1, wherein said time information for managing the time when a reproduced image is outputted is found from the time reference value to be the basis of the time information and the amount of the trick play image data extracted from said bit stream to be inputted, and

said time information is a value subsequent to said time reference value at which data representing the end of said trick play image data is outputted and normalized on the basis of a frame update period on an image display device for displaying said trick play image data.

6. The recording apparatus according to claim 4, wherein said time information for managing the time when a reproduced image is outputted is found from the time reference value to be the basis of the time information and the amount of the trick play image data extracted from said bit stream to be inputted, and

said time information is a value subsequent to said time reference value at which data representing the end of said trick play image data is outputted and normalized on the basis of a frame update period on an image display device for displaying said trick play image data.

7. The recording apparatus according to claim 1, wherein said time information to be added to said trick play image

data is a time stamp value required to output, at the time of trick play, a trickily played stream at a time interval inputted at the time of recording, and

said time stamp value is a fixed value which is synchronized with a recording track on said recording medium and corresponds to a trick play sync block number indicated in header information of each of said plurality of predetermined recording blocks composing said trick play recording data.

8. The recording apparatus according to claim 6, wherein said time information to be added to said trick play image data is a time stamp value required to output, at the time of trick play, a trickily played stream at a time interval inputted at the time of recording, and

said time stamp value is a fixed value which is synchronized with the recording track on said recording medium and corresponds to a trick play sync block number indicated in header information of each of said plurality of predetermined recording blocks composing said trick play recording data.

9. The recording apparatus according to claim 1, wherein control information required to decode said bit stream comprising the video signal and the audio signal which are coded utilizing the correlation between the screens represents an identification number for identifying the structure of the bit stream and the content of data composing the bit stream, and

said control information for trick play recorded on said

trick play area to be organized on said recording medium is information which depends on said control information included in said bit stream to be inputted and excludes said identification number relating to data which is not required to generate said trick play recording data (which is not extracted from said bit stream) .

10. The recording apparatus according to claim 8, wherein control information required to decode said bit stream comprising the video signal and the audio signal which are coded utilizing the correlation between the screens indicates an identification number for identifying the structure of the bit stream and the content of data composing the bit stream, and

said control information for trick play recorded on said trick play area to be organized on said recording medium is information which depends on said control information included in said bit stream to be inputted and excludes said identification number relating to data which is not required to generate said trick play recording data (which is not extracted from said bit stream) .

11. The recording apparatus according to claim 1, wherein said trick play recording data generation means stores the trick play image data extracted from said bit stream in order in one memory, reads out the trick play image data stored in the memory backward (in the same direction as the order stored) to generate trick play recording data for fast forward reproduction, and reads

out the trick play image data stored in the memory forward (in the direction reverse to the order stored) to generate trick play recording data for backward reproduction.

12. The recording apparatus according to claim 10, wherein said trick play recording data generation means stores the trick play image data extracted from said bit stream in order in one memory, reads out the trick play image data stored in the memory backward (in the same direction as the order stored) to generate trick play recording data for fast forward reproduction, and reads out the trick play image data stored in the memory forward (in the direction reverse to the order stored) to generate trick play recording data for backward reproduction.

13. The recording apparatus according to claim 11, wherein said packet generation means further generates a Null packet that is invalid data in an MPEG standard, and

said trick play recording data generation means inserts, in generating said trick play recording data for fast forward reproduction and backward reproduction from said trick play image data stored in said one memory, said Null packet outputted by said packet generation means into said trick play recording data in order to compensate, when the amounts of said respective trick play recording data to be generated are less than predetermined amounts, for insufficient amounts, to fill said trick play area.

14. The recording apparatus according to claim 12, wherein said packet generation means further generates a Null-

packet that is invalid data in an MPEG standard, and

said trick play recording data generation means inserts, in generating said trick play recording data for fast forward reproduction and backward reproduction from said trick play image data stored in said one memory, said Null packet outputted by said packet generation means into said trick play recording data in order to compensate, when the amounts of said respective trick play recording data to be generated are less than predetermined amounts, for insufficient amounts, to fill said trick play area.

15. The recording apparatus according to claim 11, wherein said trick play recording data generation means inserts, in generating said trick play recording data for fast forward reproduction and backward reproduction from said trick play image data stored in said one memory, a dummy sync block that is invalid data in a D-VHS standard into said trick play recording data in order to compensate, when the amounts of said respective trick play recording data to be generated are less than predetermined amounts, for insufficient amounts, to fill said trick play area.

16. The recording apparatus according to claim 1, further comprising, when said bit stream to be inputted is a bit stream conforming to an MPEG standard:

header analysis means for analyzing a PES header included in said bit stream;

DSM trick mode flag setting means for setting a DSM trick mode flag in a PES header indicating that said bit stream is trick

play data to a predetermined value;

memory means for storing the trick play data extracted from said bit stream as well as previously ensuring a 1-byte area for a trick mode field at a predetermined address, to insert the trick mode field into a predetermined position of said trick play data, and previously ensuring the trick mode field at a predetermined position in the PES header of said bit stream; and

trick mode field value insertion means for inserting, when the data is read out of said memory means, predetermined data representing trick play conditions into said trick mode field.

17. The recording apparatus according to claim 14, further comprising, when said bit stream to be inputted is a bit stream conforming to an MPEG standard:

header analysis means for analyzing a PES header included in said bit stream;

DSM trick mode flag setting means for setting a DSM trick mode flag in a PES header indicating that said bit stream is trick play data to a predetermined value;

memory means for storing the trick play data extracted from said bit stream as well as previously ensuring a 1-byte area for a trick mode field at a predetermined address, to insert the trick mode field into a predetermined position of said trick play data, and previously ensuring the trick mode field at a predetermined position in the PES header of said bit stream; and

trick mode field value insertion means for inserting, when

the data is read out of said memory means, predetermined data representing trick play conditions into said trick mode field.

18. The recording apparatus according to claim 1, wherein said bit stream comprising a video signal and an audio signal which are coded utilizing the correlation between screens is coded data by an MPEG system.

19. A reproducing apparatus for digitally reproducing, from a recording medium on which normal play recording data and trick play recording data is recorded, the recording data, the apparatus comprising:

reproduction means for reproducing said normal play recording data and said trick play recording data which are recorded on said recording medium through a reproducing head;

trickily played stream generation means for generating a trickily played stream from said trick play recording data which has been reproduced by said reproduction means;

normally played stream generation means for reconstructing said normal play recording data which has been reproduced by said reproduction means and generating a normally played stream; and

switching means for choosing which of said normally played stream and said trickily played stream is to be outputted as a reproduced stream depending on a reproduction mode, wherein

said trickily played stream generation means outputs the N-th (N is a positive integer) trickily played stream at the time of trick play, then rewrites, when the subsequent (N+1)-th

trickily played stream cannot be outputted within a predetermined time interval, time information, which is included in the N-th trickily played stream, for managing the time when a reproduced image is outputted, to a value subsequent to time information in the N-th trickily played stream and previous to time information in the subsequent (N+2)-th trickily played stream.

20. The reproducing apparatus according to claim 19, wherein said reproduced stream is coded data by an MPEG system.

21. A recording/reproducing apparatus comprising:

recording data generation means for generating recording data for recording a bit stream comprising a video signal and an audio signal which are coded utilizing the correlation between screens and trick play data generated from the bit stream, respectively, in a normal play area and a trick play area of a recording medium;

recording/reproduction means for recording said recording data on said recording medium and reproducing the recording data from said recording medium; and

reproducing data generation means for reproducing said bit stream in said normal play area at the time of normal reproduction, while reproducing said trick play data in said trick play area at the time of trick play,

the recording/reproducing apparatus further comprising

trick play data generation means for outputting trick play data including no control information for decoding the trick play

data to said recording data generation means, and

trick play data processing means for replacing information in a header part of said reproduced trick play data with information corresponding to control information for decoding newly generated and outputting the information as well as inserting the control information for decoding newly generated into the reproduced trick play data within a predetermined time interval and outputting the data with the inserted control information for decoding.

22. A recording/reproducing apparatus comprising:

recording data generation means for generating recording data for recording a bit stream comprising a video signal and an audio signal which are coded utilizing the correlation between screens and trick play data generated from the bit stream, respectively, in a normal play area and a trick play area of a recording medium;

recording/reproduction means for recording said recording data on said recording medium and reproducing the recording data from said recording medium; and

reproducing data generation means for reproducing said bit stream in said normal play area at the time of normal reproduction, while reproducing said trick play data in said trick play area at the time of trick play, the recording/reproducing apparatus further comprising

trick play data generation means for replacing, when said

trick play data is recorded, information in a header part of the trick play data generated from said bit stream with information corresponding to control information for decoding newly generated and outputting the information as well as inserting the control information for decoding newly generated into the generated trick play data within a predetermined time interval and outputting the data with the inserted control information for decoding to said recording data generation means.

23. A recording/reproducing apparatus comprising:

recording data generation means for generating recording data for recording a bit stream comprising a video signal and an audio signal which are coded utilizing the correlation between screens and trick play data generated from the bit stream, respectively, in a normal play area and a trick play area of a recording medium;

recording/reproduction means for recording said recording data on said recording medium and reproducing the recording data from said recording medium; and

reproducing data generation means for reproducing said bit stream in said normal play area at the time of normal reproduction, while reproducing said trick play data in said trick play area at the time of trick play,

the recording/reproducing apparatus further comprising

trick play data generation means for replacing, when said trick play data is recorded, information in a header part of the

trick play data generated from said bit stream with information corresponding to control information for decoding newly generated and outputting the information as well as inserting the control information for decoding newly generated into the generated trick play data at a second time interval longer than the first time interval and outputting the data with the inserted control information for decoding to said recording data generation means, and

trick play data processing means for detecting, at the time of trick play, control information for decoding which has been recorded on said trick play area of said recording medium, inserting the detected control information for decoding into said reproduced trick play data within said first time interval, and outputting the data with the inserted control information for decoding.

24. A recording/reproducing apparatus comprising:

recording data generation means for generating recording data for recording a bit stream comprising a video signal and an audio signal which are coded utilizing the correlation between screens and trick play data generated from the bit stream, respectively, in a normal play area and a trick play area of a recording medium;

recording/reproduction means for recording said recording data on said recording medium and reproducing the recording data from said recording medium; and

reproducing data generation means for reproducing said bit stream in said normal play area at the time of normal reproduction, while reproducing said trick play data in said trick play area at the time of trick play,

the recording/reproducing apparatus further comprising
trick play data generation means for outputting trick play data including no control information for decoding the trick play data to said recording data generation means, and

trick play data processing means for detecting, at the time of normal reproduction, control information for decoding included in said bit stream in said normal play area, inserting, when the transition from normal reproduction to trick play occurs, the detected control information for decoding into said reproduced trick play data within a predetermined time interval, and outputting the data with the inserted control information for decoding.

25. A recording/reproducing apparatus comprising:

recording data generation means for generating recording data for recording a bit stream comprising a video signal and an audio signal which are coded utilizing the correlation between screens and trick play data generated from the bit stream, respectively, in a normal play area and a trick play area of a recording medium;

recording/reproduction means for recording said recording data on said recording medium and reproducing the recording data

from said recording medium; and

reproducing data generation means for reproducing said bit stream in said normal play area at the time of normal reproduction, while reproducing said trick play data in said trick play area at the time of trick play,

the recording/reproducing apparatus further comprising

trick play data generation means for inserting, when said trick play data is recorded, control information for decoding detected from said bit stream into said generated trick play data at a second time interval longer than a first time interval, and outputting the data with the inserted control information for decoding to said recording data generation means, and

trick play data processing means for detecting, at the time of trick play, control information for decoding which has been recorded on said trick play area of said recording medium, inserting the detected control information for decoding into said reproduced trick play data within said first time interval, and outputting the data with the inserted control information for decoding.

26. The recording/reproducing apparatus according to claim 25, wherein the function of adding, when the control information for decoding is changed during a recording operation, the control information for decoding which has been changed to the head of said trick play data corresponding to the control information for decoding which has been changed is added to said

trick play data generation means.

27. A recording/reproducing apparatus comprising:

recording data generation means for generating recording data for recording a bit stream comprising a video signal and an audio signal which are coded utilizing the correlation between screens and trick play data generated from the bit stream, respectively, in a normal play area and a trick play area of a recording medium;

recording/reproduction means for recording said recording data on said recording medium and reproducing the recording data from said recording medium; and

reproducing data generation means for reproducing said bit stream in said normal play area at the time of normal reproduction, while reproducing said trick play data in said trick play area at the time of trick play,

the recording/reproducing apparatus further comprising

trick play data generation means for adding, when the control information for decoding from said bit stream is changed during a recording operation, the control information for decoding which has been changed to only the head of said trick play data corresponding to the control information for decoding which has been changed, and outputting the data with the added control information for decoding to said recording data generation means, and

trick play data processing means for detecting and holding,

at the time of the transition from normal reproduction to trick play, the control information for decoding included in said bit stream which has been reproduced at the time of normal reproduction, detecting and holding, at the time of trick play, the control information for decoding which has been reproduced from said trick play area, and inserting the control information for decoding into said reproduced trick play data at a predetermined time interval and outputting the data with the inserted control information for decoding.

28. A recording method for digitally recording on a recording medium a bit stream comprising a video signal and an audio signal which are coded utilizing the correlation between screens, the method comprising the steps of:

generating from said bit stream to be inputted normal play recording data, used when normal reproduction is performed, composed of a plurality of predetermined recording blocks;

generating a time information packet representing time information for managing the time when a reproduced image is outputted and a control information packet representing control information for decoding trick play recording data;

generating from said bit stream said trick play recording data, used when reproduction at a speed different from that in normal reproduction (hereinafter referred to as trick play) is performed, composed of a plurality of predetermined recording blocks by adding said time information packet and said control

information packet; and

recording through a recording head said normal play recording data in a normal play area to be organized on said recording medium and said trick play recording data in a trick play area to be organized on said recording medium, and respectively recording said time information packet and said control information packet at predetermined positions inside the trick play area in a format of said trick play recording data.

29. The recording method according to claim 28, wherein said predetermined positions are provided on said recording medium in such a manner as to be arranged at least once within a predetermined time interval in synchronized with the scanning of said recording head at the time of trick play at a predetermined number of times the speed at the time of normal reproduction.

30. The recording method according to claim 28, further comprising the step of generating said time information representing a time reference value within the predetermined time interval, and adding a predetermined fixed value corresponding to the predetermined position inside said trick play area where said time information is recorded to the previous time information, to calculate the time reference value.

31. The recording method according to claim 29, further comprising the step of generating said time information representing a time reference value within the predetermined time interval, and adding a predetermined fixed value corresponding

to the predetermined position inside said trick play area where said time information is recorded to the previous time information, to calculate the time reference value.

32. The recording method according to claim 28, wherein said time information for managing the time when a reproduced image is outputted is found from the time reference value to be the basis of the time information and the amount of the trick play image data extracted from said bit stream to be inputted, and

said time information is a value subsequent to said time reference value at which data representing the end of said trick play image data is outputted and normalized on the basis of a frame update period on an image display device for displaying said trick play image data.

33. The recording method according to claim 31, wherein said time information for managing the time when a reproduced image is found is outputted from the time reference value to be the basis of the time information and the amount of the trick play image data extracted from said bit stream to be inputted, and

said time information is a value subsequent to said time reference value at which data representing the end of said trick play image data is outputted and normalized on the basis of a frame update period on an image display device for displaying said trick play image data.

34. The recording method according to claim 28, wherein said time information to be added to said trick play recording data is a time stamp value required to output, at the time of trick play, a trickily played stream at a time interval inputted at the time of recording, and

said time stamp value is a fixed value which is synchronized with a recording track on said recording medium and corresponds to a trick play sync block number indicated in header information of each of said plurality of predetermined recording blocks composing said trick play recording data.

35. The recording method according to claim 33, wherein said time information to be added to said trick play recording data is a time stamp value required to output, at the time of trick play, a trickily played stream at a time interval inputted at the time of recording, and

said time stamp value is a fixed value which is synchronized with a recording track on said recording medium and corresponds to a trick play sync block number indicated in header information of each of said plurality of predetermined recording blocks composing said trick play recording data.

36. The recording method according to claim 28, wherein control information required to decode said bit stream comprising the video signal and the audio signal which are coded utilizing the correlation between screens represents an identification number for identifying the structure of the bit

stream and the content of data composing the bit stream, and.

said control information for trick play recorded on said trick play area to be organized on said recording medium is information which depends on said control information included in said bit stream to be inputted and excludes said identification number relating to data which is not required to generate said trick play recording data (which is not extracted from said bit stream).

37. The recording method according to claim 35, wherein control information required to decode said bit stream comprising the video signal and the audio signal which are coded utilizing the correlation between screens represents an identification number for identifying the structure of the bit stream and the content of data composing the bit stream, and

said control information for trick play recorded on said trick play area to be organized on said recording medium is information which depends on said control information included in said bit stream to be inputted and excludes said identification number relating to data which is not required to generate said trick play recording data (which is not extracted from said bit stream).

38. The recording method according to claim 28, wherein in said step of generating said trick play recording data, the trick play image data extracted from said bit stream is stored in order in one memory, the trick play image data stored in the

memory is read out backward (in the same direction as the order recorded) to generate trick play recording data for fast forward reproduction, and the trick play image data stored in the memory is read out forward (in the direction reverse to the order stored) to generate trick play recording data for backward reproduction.

39. The recording method according to claim 37, wherein in said step of generating said trick play recording data, the trick play image data extracted from said bit stream is stored in order in one memory, the trick play image data stored in the memory is read out backward (in the same direction as the order recorded) to generate trick play recording data for fast forward reproduction, and the trick play image data stored in the memory is read out forward (in the direction reverse to the order stored) to generate trick play recording data for backward reproduction.

40. The recording method according to claim 38, further comprising the step of generating a Null packet that is invalid data in an MPEG standard, wherein

in said step of generating said trick play recording data, in generating said trick play recording data for fast forward reproduction and backward reproduction from said trick play image data stored in said one memory, said Null packet is inserted into said trick play recording data in order to compensate, when the amounts of said respective trick play recording data to be generated are less than predetermined amounts, for insufficient amounts, to fill said trick play area.

41. The recording method according to claim 39, further comprising the step of generating a Null packet that is invalid data in an MPEG standard, wherein

in said step of generating said trick play recording data, in generating said trick play recording data for fast forward reproduction and backward reproduction from said trick play image data stored in said one memory, said Null packet is inserted into said trick play recording data in order to compensate, when the amounts of said respective trick play recording data to be generated are less than predetermined amounts, for insufficient amounts, to fill said trick play area.

42. The recording method according to claim 38, wherein in said step of generating said trick play recording data, in generating said trick play recording data for fast forward reproduction and backward reproduction from said trick play image data stored in said one memory, a dummy sync block that is invalid data in a D-VHS standard is inserted into said trick play recording data in order to compensate, when the amounts of said respective trick play recording data to be generated are respectively less than predetermined amounts, for insufficient amounts, to fill said trick play area.

43. The recording method according to claim 28, further comprising, when said bit stream to be inputted is a bit stream conforming to an MPEG standard, the steps of:

analyzing a PES header included in said bit stream;

setting a DSM trick mode flag in a PES header indicating that said bit stream is trick play data to a predetermined value;

storing the trick play data extracted from said bit stream as well as previously ensuring a 1-byte area for a trick mode field at a predetermined address, to insert the trick mode field into a predetermined position of said trick play data, and previously ensuring the trick mode field at the predetermined position in the PES header of said bit stream; and

inserting, when the data is read out at the ensuring step and the subsequent steps, predetermined data representing trick play conditions into said trick mode field.

44. The recording method according to claim 41, further comprising, when said bit stream to be inputted is a bit stream conforming to an MPEG standard, comprising the steps of:

analyzing a PES header included in said bit stream;

setting a DSM trick mode flag in a PES header indicating that said bit stream is trick play data to a predetermined value;

storing trick play data extracted from said bit stream as well as previously ensuring a 1-byte area for a trick mode field at a predetermined address, to insert the trick mode field into a predetermined position of said trick play data, and previously ensuring the trick mode field at the predetermined position in the PES header of said bit stream; and

inserting, when data is read out at the ensuring step and the subsequent steps, predetermined data representing trick play

conditions into said trick mode field.

45. The recording method according to claim 28, wherein said bit stream comprising the video signal and the audio signal which are coded utilizing the correlation between screens is coded data by an MPEG system.

46. A reproducing method for digitally reproducing, from a recording medium on which normal play recording data and trick play recording data is recorded, the recording data, the method comprising the steps of:

reproducing said normal play recording data and said trick play recording data which are recorded on said recording medium through a reproducing head;

reconstructing said reproduced normal play recording data and generating a normally played stream;

generating a trickily played stream from said reproduced trick play recording data;

outputting the N-th (N is a positive integer) trickily played stream at the time of trick play, then rewriting, when the subsequent (N+1)-th trickily played stream cannot be outputted within a predetermined time interval, time information, which is included in the N-th trickily played stream, for managing the time when a reproduced image is outputted, to a value subsequent to time information in the N-th trickily played stream and previous to time information in the subsequent (N+2)-th trickily played stream; and

choosing which of said normally played stream and said trickily played stream is to be outputted as a reproduced stream depending on a reproduction mode.

47. The reproducing method according to claim 46, wherein said reproduced stream is coded data by an MPEG system.

48. A recording/reproducing method for recording and reproducing on a recording medium a bit stream comprising a video signal and an audio signal which are coded utilizing the correlation between screens, the method comprising the steps of:

generating trick play data from said bit stream such that control information for decoding trick play data is not included;

generating recording data for recording said bit stream and said trick play data, respectively, in a normal play area and a trick play area of said recording medium;

recording said recording data on said recording medium;

reproducing, at the time of normal reproduction, said bit stream in said normal play area from said recording medium while reproducing, at the time of trick play, said trick play data in said trick play area from said recording medium; and

replacing, at the time of trick play, information in a header part of said reproduced trick play data with information corresponding to control information for decoding newly generated as well as inserting the control information for decoding newly generated into the reproduced trick play data within a predetermined time interval.

49. A recording/reproducing method for recording and reproducing on a recording medium a bit stream comprising a video signal and an audio signal which are coded utilizing the correlation between screens, the method comprising the steps of:

generating trick play data from said bit stream;

replacing information in a header part of trick play data with information corresponding to control information for decoding newly generated;

inserting said control information for decoding newly generated into said generated trick play data within a predetermined time interval;

generating recording data for recording said bit stream and said trick play data, respectively, in a normal play area and a trick play area of said recording medium;

recording said recording data on said recording medium; and

reproducing, at the time of normal reproduction, said bit stream in said normal play area from said recording medium, while reproducing, at the time of trick play, said trick play data in said trick play area from said recording medium.

50. A recording/reproducing method for recording and reproducing on a recording medium a bit stream comprising a video signal and an audio signal which are coded utilizing the correlation between screens, the method comprising the steps of:

generating trick play data from said bit stream;

replacing information in a header part of trick play data

with information corresponding to control information for decoding newly generated;

inserting said control information for decoding newly generated into said generated trick play data at a second time interval longer than a first time interval;

generating recording data for recording said bit stream and said trick play data, respectively, in a normal play area and a trick play area of said recording medium;

recording said recording data on said recording medium;

reproducing, at the time of normal reproduction, said bit stream in said normal play area from said recording medium, while reproducing, at the time of trick play, said trick play data in said trick play area from said recording medium; and

detecting, at the time of trick play, control information for decoding which has been recorded on said trick play area of said recording medium, and inserting the detected control information for decoding into said reproduced trick play data within said first time interval.

51. A recording/reproducing method for recording and reproducing on a recording medium a bit stream comprising a video signal and an audio signal which are coded utilizing the correlation between screens, the method comprising the steps of:

generating trick play data from said bit stream such that control information for decoding trick play data is not included;

generating recording data for recording said bit stream and

said trick play data, respectively, in a normal play area and a trick play area of said recording medium;

recording said recording data on said recording medium;

reproducing, at the time of normal reproduction, said bit stream in said normal play area from said recording medium, while reproducing, at the time of trick play, said trick play data in said trick play area from said recording medium;

detecting, at the time of normal reproduction, control information for decoding included in said reproduced bit stream; and

inserting, at the time of the transition from normal reproduction to trick play, said detected control information for decoding into said reproduced trick play data within a predetermined time interval.

52. A recording/reproducing method for recording and reproducing on a recording medium a bit stream comprising a video signal and an audio signal which are coded utilizing the correlation between screens, the method comprising the steps of:

generating trick play data from said bit stream;

detecting control information for decoding from said bit stream, and inserting the control information for decoding into said generated trick play data at a second time interval longer than a first time interval;

generating recording data for recording said bit stream and said trick play data, respectively, in a normal play area and a

trick play area of said recording medium;

recording said recording data on said recording medium;

reproducing, at the time of normal reproduction, said bit stream in said normal play area from said recording medium, while reproducing, at the time of trick play, said trick play data in said trick play area from said recording medium;

detecting, at the time of trick play, control information for decoding which has been recorded on said trick play area of said recording medium, and inserting the detected control information for decoding into said reproduced trick play data within said first time interval.

53. The recording/reproducing method according to claim 52, further comprising the step of adding, when the control information for decoding is changed during a recording operation, the control information for decoding which has been changed to the head of said trick play data corresponding to the control information for decoding which has been changed.

54. A recording/reproducing method for recording and reproducing on a recording medium a bit stream comprising a video signal and an audio signal which are coded utilizing the correlation between screens, the method comprising the steps of:

generating trick play data from said bit stream;

detecting control information for decoding from said bit stream, and inserting the control information for decoding into said generated trick play data at a second time interval longer

than a first time interval;

adding, when said control information for decoding from said bit stream is changed during a recording operation, the control information for decoding which has been changed to only the head of said trick play data corresponding to the control information for decoding which has been changed;

generating recording data for recording said bit stream and said trick play data, respectively, in a normal play area and a trick play area of said recording medium;

recording said recording data on said recording medium;

reproducing, at the time of normal reproduction, said bit stream in said normal play area from said recording medium, while reproducing, at the time of trick play, said trick play data in said trick play area from said recording medium;

detecting and holding, at the time of the transition from normal reproduction to trick play, the control information for decoding included in said bit stream which has been reproduced at the time of normal reproduction; and

detecting and holding, at the time of trick play, said control information for decoding which has been reproduced from said trick play area, and inserting the held control information for decoding into said reproduced trick play data within a predetermined time interval.